CLAIMS

1.   In a medical diagnostic imaging system, a communication protocol for providing bi-directional communication between a medical imaging subsystem and a medical navigational subsystem, the communication protocol comprising:

a plurality of navigation subsystem to imaging subsystem messages; and

a Begin Imaging and an End Imaging message for synchronizing image acquisition with navigation coordinate determination, the Begin Imaging and End Imaging messages included in imaging subsystem to the navigation subsystem messages.

2.   The communication protocol of claim 1, wherein the communication protocol includes a magnification mode message specifying a magnification mode of an X-ray detector.

3.   The communication protocol of claim 2, wherein the magnification mode specifies one of a 12 inch, 9 inch, and 6 inch magnification mode for a 12 inch image intensifier or one of a 9 inch, 6 inch, and 4.5 inch magnification mode for a 9 inch image intensifier.

4.   The communication protocol of claim 1, wherein the navigation subsystem to imaging subsystem messages include an image request message, the imaging subsystem to navigation subsystem messages include an image reply message, and the image reply message comprises image width, image height, and pixel data.

5. The communication protocol of claim 4, wherein the image reply message further comprises bytes-per-pixel, field of view, and image rotation.

6. The communication protocol of claim 1, wherein at least one of the navigation subsystem to imaging subsystem messages and the imaging subsystem to navigation subsystem messages include a Ping response time message.

7. The communication protocol of claim 1, wherein the navigation subsystem to imaging subsystem messages include a system configuration request message.

8. The communication protocol of claim 1, wherein the imaging subsystem to navigation subsystem messages include a system configuration reply message.

9. The communication protocol of claim 8, wherein the system configuration reply message comprises a system model and software revision.

10. The communication protocol of claim 1, wherein the navigation subsystem to imaging subsystem messages include a file request message specifying a filename to transfer.

11. The communication protocol of claim 10, wherein the imaging subsystem to navigation subsystem messages include a file reply message with responsive data from a file identified by the filename.

12. The communication protocol of claim 1, wherein the imaging subsystem to navigation subsystem messages include a patient information message specifying at least patient name, sex, and patient ID.

13. The communication protocol of claim 1, wherein the imaging subsystem to navigation subsystem messages include a navigation subsystem network address selection message.

14. A method for communication in a bi-directional diagnostic imaging system between a medical imaging subsystem and a medical navigational subsystem, the method comprising:

realizing in a navigation subsystem a plurality of navigation subsystem to imaging subsystem messages;

realizing in the imaging subsystem a Begin Imaging and an End Imaging message for synchronizing image acquisition with navigation coordinate determination, the Begin Imaging and End Imaging messages included in imaging subsystem to navigation subsystem messages; and

formatting the End Imaging message according to a predetermined message header format common to a plurality of the navigation subsystem to imaging subsystem messages and the imaging subsystem to navigation subsystem messages; and

transmitting the End Imaging message from the imaging subsystem to the navigation subsystem.

15. The method of claim 14, wherein transmitting comprises transmitting over a high speed network connection.

16. The method of claim 14, wherein transmitting comprises transmitting over an Ethernet network connection.

17. The method of claim 14, wherein transmitting comprises transmitting according to the TCP/IP protocol.

18. The method of claim 14, further comprising:

formatting an image request message according to the predetermined message header format;

transmitting the image request message from the imaging subsystem to the navigation subsystem;

formatting an image reply message according to the predetermined message header format; and

transmitting the image reply message with image data from the imaging subsystem to the navigation subsystem.

19. The method of claim 14, wherein transmitting comprises transmitting across a private network between the navigation subsystem and the imaging subsystem.

20. The method of claim 14, further comprising transmitting a magnification mode message specifying a magnification mode of an X-ray detector.